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A SCANA COMPANY

July 30, 2008

Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION (VCSNS)
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
LICENSEE EVENT REPORT (LER 2008-001-01)
MANUAL REACTOR TRIP DUE TO LOW STEAM GENERATOR LEVEL
CAUSED BY FEEDWATER FLOW CONTROL VALVE MALFUNCTION

Attached is Licensee Event Report (LER) No. 2008-001-01, for the Virgil C. Summer Nuclear Station (VCSNS). The revised report describes the sequence of actions that led to a manual reactor trip due to low steam generator level resulting from the malfunction of a feedwater flow control valve. This report is submitted in accordance with 10CFR50.73(a)(2)(iv). Revisions are identified by vertical bars in the right side margin of the attached.

Should you have any questions, please call Mr. Bruce Thompson at (803) 931-5042.

Very truly yours,

Jeffrey B. Archie

JW/JBA/sr
Attachment

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File (818.07)
DMS (RC-08-0098)

IE22
NRR

NRC FORM 366 (9-2007) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 08/31/2010

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
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4. TITLE

Manual Reactor Trip Due to Low Steam Generator Level Caused by Feedwater Flow Control Valve Malfunction

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
01	24	2008	2008	- 1 -	1	07	30	2008	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

Mode 1

10. POWER LEVEL

100%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check all that apply)*

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☐ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☑ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☐ 50.73(a)(2)(i)(B)	☐ 50.73(a)(2)(v)(D)	Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER *(Include Area Code)*
Virgil C. Summer Nuclear Station	(803) 931-5042

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
B	JB	FCV	F130	Y					

14. SUPPLEMENTAL REPORT EXPECTED

○ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ◉ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On January 24, 2008, the C feedwater flow control valve (IFV00498) exhibited oscillations as indicated by the plant computer and on the Main Control Board (MCB). As the feedwater flow oscillations increased in size, the Shift Supervisor directed the operator to take manual control of the valve. Feedwater flow was greater than steam flow when manual control was implemented. When the operator decreased flow demand on the manual/auto station, IFV00498 indicated closed and feedwater flow decreased to zero. Due to a rapidly decreasing level in C Steam Generator, the Shift Supervisor directed a manual reactor trip at 1604 hours. The operations crew entered the reactor trip procedure. All systems responded as required. The plant was stabilized in Mode 3.

The root cause was determined to be the failure of the feedwater flow control valve positioner pilot valve. The failure was due to either fretting as a result of normal operation or foreign material inclusion into the component's air system due to insufficient filtration and vibration induced component wear.

On each feedwater flow control valve, the positioners, check valves, and pressure regulators were replaced, and additional filtration was installed. Copper tubing and the brass check valves were replaced with stainless steel to minimize particulate intrusion. In addition, components susceptible to vibration were relocated. To address future problems, an "air-gag" device was installed on each feedwater flow control valve to facilitate on-line maintenance without loss of safety function.

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NARRATIVE

PLANT IDENTIFICATION

Westinghouse - Pressurized Water Reactor

EQUIPMENT IDENTIFICATION

IFV00498 Feedwater Flow Control Valve

IDENTIFICATION OF EVENT

On January 24, 2008, the C feedwater flow control valve (IFV00498) exhibited oscillations as indicated by the plant computer and on the Main Control Board (MCB). As the feedwater flow oscillations increased in size, the Shift Supervisor directed the operator to take manual control of the valve. Feedwater flow was greater than steam flow when manual control was implemented. When the operator decreased flow demand on the manual/auto station, IFV-498 indicated closed and feedwater flow decreased to zero. Due to a rapidly decreasing level in C Steam Generator, the Shift Supervisor directed a manual reactor trip at 1604 hours. The operations crew entered the reactor trip procedure. All systems responded as required. The plant was stabilized in Mode 3.

EVENT DATE

1/24/2008

Condition Report CR-08-00292 was initiated to address this event.

REPORT DATE

07/30/2008

CONDITIONS PRIOR TO EVENT

Mode 1, 100% Power

DESCRIPTION OF EVENT

On January 24, 2008, the C feedwater flow control valve (IFV00498) exhibited oscillations as indicated by the plant computer and on the MCB. As the feedwater flow oscillations increased in size, the Shift Supervisor directed the operator to take manual control of the valve. Feedwater flow was greater than steam flow when manual control was implemented. When the operator decreased flow demand on the manual/auto station, IFV00498 indicated closed and feedwater flow decreased to zero. Due to a rapidly decreasing level in C Steam Generator, the Shift Supervisor directed a manual reactor trip at 1604 hours. The operations crew entered the reactor trip procedure. The Emergency Feedwater Pumps automatically started on Lo-Lo Steam Generator level. Steam Generator levels recovered quickly. Cycling of the Pressurizer Level Control System resulted in the Letdown Relief Valve lifting due to high temperature and pressure. The Letdown Relief Valve reseated with no further anomalies. One Moisture Separator Reheater relief valve lifted momentarily, as expected during a turbine trip, and promptly reseated. All systems responded as required. The plant was stabilized in Mode 3.

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NARRATIVE

CAUSE OF EVENT

The root cause was determined to be the failure of the feedwater flow control valve positioner pilot valve. The failure was due to either fretting as a result of normal operation or foreign material inclusion into the component's air system due to insufficient filtration and vibration induced component wear.

ANALYSIS OF EVENT

Flow Control Valve IFV00498 is a design backup to the associated Feedwater Isolation Valve (FWIV). The condition of IFV00498 did not affect the ability of the FWIV to perform its function. Only the flow control function of IFV00498 was impacted by this condition. However, the capability of the valve to close on an isolation signal and meet its safety function was not impacted.

CORRECTIVE ACTIONS

On each feedwater flow control valve, the positioners, check valves, and pressure regulators were replaced, and additional filtration was installed. Copper tubing and the brass check valves were replaced with stainless steel to minimize particulate intrusion. In addition, components susceptible to vibration were relocated. To address future problems, an "air-gag" device was installed on each feedwater flow control valve to facilitate on-line maintenance without loss of safety function.

PRIOR OCCURRENCES

There have been two other instances of Feedwater Flow Control Valve malfunctions in the past. A similar event occurred on March 30, 2004 and was reported by Licensee Event Report (LER) 2004-001-00. Valve positioners on all three feedwater flow control valves were replaced. An engineering evaluation was initiated to address resolution of pilot valve performance issues. VCSNS subsequently experienced degraded response of IFV00498 while shutting down the reactor on December 4, 2004. All three valve positioners were replaced on January 28, 2005.